



## MEMORANDUM

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**TO:** MAYOR AND MEMBERS OF TOWN COUNCIL  
**FROM:** R.E. FLETCHER, ATM ENGINEERING  
**SUBJECT:** VERDIER COVE DRAINAGE  
**DATE:** MARCH 9, 2010  
**CC:** ANTHONY W. BARRETT, TOWN MANAGER  
MARC ORLANDO, ATM GROWTH MANAGEMENT  
SHIRLEY FREEMAN, ATM FINANCE

### **Summary (based on available technical data & visual inspections):**

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- Hidden Lakes original flow was designed to go north to the Colleton River per predevelopment conditions
- Bluffton Park predevelopment flows (based on earlier ATM report):
  - Commercial: generally flowed north to the Colleton River
  - Residential: approximately 50% to Colleton & 50% to the May River (break point undefined)
- The commercial development along the south side of the Bluffton Parkway along with a portion of the Parkway and Simmonsville Road drains into Hidden Lakes.
- A significant percentage of the flow entering B-11 flows south into B-5 and B-3 contrary to the original Hidden Lakes design and Bluffton Park residential design.

### **Contributing Factors:**

- Ditches from the Hidden Lakes outfall point to Red Cedar and ditches north of Red Cedar to Hwy. 278 have reduced flow due to vegetative growth and sediment (absence of routine maintenance)
- Unintended flow from Hidden Lakes and Bluffton Parkway Commercial is going back south draining into the Bluffton Park residential system instead of draining north to the Colleton.
- Culvert elevations at Red Cedar & Bluffton Parkway appear to be set at higher elevations than surrounding ground surfaces which further impedes the northern flow.

**Proposed Options:** Staff is in ongoing discussions with the County regarding the under road piping elevations at Red Cedar and Bluffton Parkway

- Curtail the southern flow by removing sediment and vegetative growth in the ditches and trenches flowing north
- Remove flow impediments at Red Cedar and Bluffton Park to improve positive northern flow. (Potential additional culvert 12-18" lower at each location)
- Remove temporary culvert at B-11 to isolate the teardrop lagoon from the wetland system to keep unintended flow from draining south.

- Install a small berm at northern section of B-5
- Adjust spillway outflow at B-9 and B-10

**Execute work in three phases:**

1. Bluffton Parkway to Hwy. 278: Ditch maintenance and reduce roadway impediment
2. Red Cedar to Bluffton Parkway: Ditch maintenance and reduce roadway impediment
3. Hidden Lakes outfall to Red Cedar: Ditch maintenance
4. Remove culvert at B-11 to isolate tear drop lagoon from wetland.
5. If necessary: berm work at B-5 and adjust B-9 and B-10 spillway outflow

Estimate costs: \$225,000

Estimated Duration: six months (permit dependent)

**Summary:**

The present conditions are a result of a series of individual developments which are inter-related but not totally integrated.

The Bluffton Park residential system is servicing a larger area (Hidden Lakes and portions of Bluffton Parkway Commercial) than originally designed due to lack of ditch maintenance and vegetative growth in the area.

There is no comprehensive drainage basin model of pre-development conditions. Therefore, predevelopment conditions can be approximated but cannot be exactly quantified.

Current flow volumes at Verdier Cove may be reduced by re-establishing flow patterns northward as originally indicated in historical documents and removing areas where unintended flow can enter the Verdier Cove watershed.

Velocities at Verdier Cove can be reduced by adding rip-rap which will slow the erosion process.